

What is claimed is:

1. (Amended) A method of cleaning a substrate-processing apparatus, comprising the steps of:

5       after processing a substrate placed in an inner chamber of a substrate processing apparatus, elevating a temperature of the inner chamber higher than that when processing thereof;

10       exhausting a space between the inner chamber and an outer chamber that accommodates the inner chamber;

      supplying a cleaning gas into the inner chamber; and

      removing substances to be cleaned off which are adhered to an inside of the inner chamber, while cooling the outer chamber

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2. (Canceled)

3. The cleaning method of claim 1, wherein the outer chamber is made of metals.

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4. The cleaning method of claim 1, wherein the cleaning gas is spread along a surface of a substrate-supporting member which supports the substrate accommodated into the inner chamber.

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5. The cleaning method of claim 1, wherein the cleaning

gas includes ketone.

6. The cleaning method of claim 5, wherein the ketone is  $\beta$ -diketone.

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7. The cleaning method of claim 6, wherein  $\beta$ -diketone is hexafluoroacetylaceton.

8. The cleaning method of claim 1, wherein the  
10 temperature of the inner chamber is higher than that of the inner chamber when processing a substrate by more than or equal to 100 °C.

9. The cleaning method of claim 1, wherein the inner  
15 chamber is made of quartz or ceramics.

10. The cleaning method of claim 1, wherein the substances to be cleaned off are oxides containing at least one element selected from the group consisting of Al, Y, Zr, Hf, La, Ce  
20 and Pr.

11. The cleaning method of claim 1, wherein the cleaning gas includes an active species.

25 12. The cleaning method of claim 1, wherein the cleaning method is performed while exhausting an inside of the inner

chamber.

13. The cleaning method of claim 12, wherein the  
exhausting of the inside of the inner chamber is performed  
5 by using a different exhausting system from the exhausting  
system which is used for processing the substrate.

14. The cleaning method of claim 12, wherein the  
exhausting of the inside of the inner chamber is performed  
10 while collecting a by-product which is generated from a  
chemical reaction between the substances to be cleaned-off  
and the cleaning gas.

15. The cleaning method of claim 14, wherein the  
15 collecting of the by-product is performed at a position  
close to the inner chamber.

16. The cleaning method of claim 1, wherein the inner  
chamber is heated by a resistance heating element.

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17. The cleaning method of claim 1, wherein the inner  
chamber is heated by a heating lamp.

18. (Canceled)

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19. (Canceled)

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34. (Canceled)

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35. (Amended) A method for cleaning a substrate-processing apparatus, comprising the steps of:

after processing a substrate placed in an inner chamber of a substrate processing apparatus, elevating a temperature of the chamber higher than that during the processing of the substrate;

supplying a cleaning gas having Ketone into the chamber; and

removing substances to be cleaned off which is adhered to an inside of the inner chamber.

36. The cleaning method of claim 35, wherein the method is performed by spreading a cleaning gas along a surface of a substrate-supporting member.

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37. The cleaning method of claim 35, wherein ketone is  $\beta$ -diketone.

38. The cleaning method of claim 37, wherein  $\beta$ -diketone is hexafluoroacetylaceton.

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39. The cleaning method of claim 35, wherein the temperature of the chamber is higher than that during the processing of the substrate by more than or equal to 100 °C.

5 40. The cleaning method of claim 35, wherein the inner chamber is made of quartz or ceramics.

41. The cleaning method of claim 35, wherein the substances to be cleaned off are oxides containing at least  
10 one element selected from the group consisting of Al, Y, Zr, Hf, La, Ce and Pr.

42. The cleaning method of claim 35, wherein the cleaning gas includes an active species.

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43. The cleaning method of claim 35, wherein the cleaning method is performed while exhausting an inside of the chamber.

20 44. The cleaning method of claim 43, wherein the exhausting of the inside of the inner chamber is performed by using a different exhausting system from that used for processing the substrate.

25 45. The cleaning method of claim 43, wherein the exhausting of the inside of the chamber is performed while

collecting by-products which are generated from a chemical reaction between the substances to be cleaned-off and the cleaning gas.

5     46. The cleaning method of claim 45, wherein the collecting of the by-products is performed at a position close to the inner chamber.

10     47. The cleaning method of claim 35, wherein the chamber is heated by a resistance heating element.

48. The cleaning method of claim 35, wherein the chamber is heated by a heating lamp.

15     49. (Amended) A substrate-processing apparatus, comprising:  
         an inner chamber;  
         , an outer chamber accommodating the inner chamber;  
         a cleaning gas supplying unit for providing a cleaning gas to an inside of the inner chamber;  
20           a chamber heater for heating the inner chamber, being installed between the inner chamber and the outer chamber;  
         and  
         an exhaust unit for exhausting a space between the inner chamber and the outer chamber.

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50. (Canceled)

51. The substrate-processing apparatus of claim 49,  
further comprising a reflecting body which guides a heat ray  
into the inner chamber, the heat ray being irradiated from  
5 the chamber heater.

52. (Canceled)

53. (New) A substrate-processing apparatus, comprising:  
10 an inner chamber;  
an outer chamber made of metals and accommodating the  
inner chamber;  
a cleaning gas supplying unit for providing a cleaning  
gas to an inside of the inner chamber;  
15 a chamber heater for heating the inner chamber; and  
an exhaust unit for exhausting a space between the  
inner chamber and the outer chamber.

54. (New) A substrate-processing apparatus, comprising:  
20 an inner chamber;  
an outer chamber accommodating the inner chamber;  
a cleaning gas supplying unit for providing a cleaning  
gas to an inside of the inner chamber;  
a chamber heater for heating the inner chamber;  
25 an exhaust unit for exhausting a space between the  
inner chamber and the outer chamber; and



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a cooling unit for cooling the outer chamber, being installed to the outer chamber.